CWO 45-1 STATEMENT OF WORK - FY 1997

The period of performance for CWO 45-1 is 10/14/96 through 9/21/97.

This effort is funded through 9/21/97.

CWO Title Sea Dragon Command Center Testbed - Engineering Support

WORK STATEMENT

See attached Task Overview. It is anticipated that additional modifications of thie CWO in support of Sea Dragon will follow.

SCOPE

14 October, 1996 through 21 September 1997

TASK OVERVIEW

The Marine Corps has established the Commandant's Warfighting Laboratory (CWL), in Quantico, Virginia as the centerpiece for operational enhancement of the Marine Corps into the next century. The CWL acts as a crucible for forging advanced concepts with emerging technological developments as preparation for their introduction into the Fleet Marine Forces. The Commandant has authorized the CWL to implement SeaDragon, a concept-based experimentation process as the mechanism of change

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One of the first initiatives that the CWL is pursuing under SeaDragon is an advanced warfighting experiment (AWE) labeled Hunter Warrior, to be executed during February, 1997. A series of limited objective experiments (LOE) will precede and follow Hunter Warrior as the prelude to a five-year plan designed to explore the full spectrum of operations relevant to Fleet Marine Forces. The SeaDragon process will include investigations into innovative new concepts and their related technologies, in such diverse areas as fires and targeting, command and control, communications, mobility, survivability, sustainment, biological and commercial, non-lethal technologies as well as training and simulation techniques.

The Sea Dragon operational concept requires the ability to link individuals, teams and electronic assets together into new and experimental organizational structures which are substantially different than the classical Napoleonic model. One objective of the operational concept is to create an information management system which supports a reduction in reactive decision process times from hours to minutes and a reduction of the deliberate planning times from days to hours.

To support the operational concept, the information management system will create an environment which embodies parallel decision making processes, rather than sequential decision making processes which are time consuming and inflexible. This will be achieved by creating a Semantic Network throughout the SeaDragon C4I architecture. The Semantic Network is used to represent knowledge within the system as facts and the *relationships* of these facts, thus providing a structure for organizing this knowledge.

Within the Semantic network, the concept of a "Shared Net" has been developed to describe the datasystem which provides the transport mechanism between all the various sources for knowledge within the battlescape. The Shared Net is based on standard and emerging Internet technology, but is optimized to support the new information flows and decision processes required by the operational concept. It must support a dynamically changing environment, and be rapidly reconfigurable to implement the tools necessary for experimentation of new parallel decision processes. Furthermore, during AWEs, the Shared Net will provide a testbed for experimentation of the optimal paths of knowledge transfer between individuals, teams and electronic assets (i.e., blackboards, agents, message stores, collaboration session, etc.).

The operational concept includes extending the Shared Net from the Combat Operations Center/Engagement Coordination Center (COC/ECC) seamlessly over the battlefield to the inserted teams and Jump Command Posts (SP). This capability is provided through a concept called the "Internet Node in the Sky" (INITS). The INITS will distribute computing intelligence forward from the COC/ECC to the deployed units to minimize unessential knowledge transfers, thus increasing the effective bandwidth of the battlefield communication paths.

The Jet Propulsion Laboratory will develop Shared Net and INITS capabilities for the Marine Corps through the creative application of COTS software, effective systems integration and the implementation of processes which connect this infrastructure.